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GEOLOGY.—*On some recent excursions into Pleistocene geology and paleontology.*[1] OLIVER P. HAY, Washington, D. C.

Within recent months there have appeared certain articles on the Pleistocene which the present writer proposes to review.

One of these papers has as its author Mr. J. E. Eaton, consulting geologist, Los Angeles, California,[2] and is entitled *Divisions and duration of the Pleistocene in southern California.* This writer tells us that the Pleistocene record in the region mentioned indicates a duration of the epoch in excess of 1,000,000 years; also that the terms Pleistocene and Glacial are not synonymous.

As regards the duration of the epoch certain adherents of the prevai ing theory have already invoked a considerably longer period.

As for the relation of the Pleistocene and the Glacial epochs opinions differ. Most European geologists include in the Pleistocene only the last two glacial stages, relegating the first two to the Pliocene. American authors usually hold that the epochs are one and the same in extent. Eaton on the other hand intercalates in the Pleistocene a time, the Sierran, which precedes the Glacial and is much longer. It is not my purpose to argue about the chronological position of the Sierran. It is noted, however, that Chamberlin and Salisbury escape Eaton's conclusions by flatly assigning the Sierran to the Pliocene, and apparently Schuchert does the same.

Eaton's views on the time and manner of ushering in the Pleistocene are of more interest to me. California appears to have been from remote times geologically active. From the close of the Jurassic the earth's crust was split, broken into great blocks and the fragments

[1] Received November 14, 1929.
[2] Bull. Am. Assoc. Petr. Geol. 12: 111–141. 1928.

were tilted. From the middle of the Eocene to the early Pleistocene marine deposits were laid down without interruption to a thickness of more than 30,000 feet. Then, as if in anticipation of the great psychic forces that were to dominate that region in the distant future, preparations were early initiated for the new era. The transition from the Pliocene to the Pleistocene was accomplished quickly. The change in the marine fauna in the basal 100 feet of the transition zone was greater than that effected in 6,000 feet of the Pliocene strata. The cause of this critical change is set forth as being a hard but sharp oscillation; also it is described as a tremendous shock or shudder, which seemed however to produce little other immediate consequences. The biological result, however, was to metamorphose the Pliocene fauna containing 36.3 per cent of extinct species into a Pleistocene assemblage that included from 1.8 per cent to 7.4 per cent only of extinct forms.

It is commonly supposed that geological ages, periods, and epochs begin and end all over the world at the same time, but there appear to be exceptions. The percentage of extinct species noted above is only somewhat less than that of the Plaisancian of Italy. It follows then that the Pleistocene of California began at a time when the rest of the world was entering into about the middle of the Pliocene.

The Glacial epoch is placed by Eaton near the end of the Pleistocene. He devotes a few paragraphs to the vertebrate fossils found at La Brea near Los Angeles. He regards the time of their existence as being in the upper, and probably uppermost, Pleistocene. He quotes my good friend Dr. Chester Stock as informing him that all those species should be placed somewhere in the last half rather than in the first half of the Pleistocene. The present writer would be glad to have these scientific gentlemen inform him what kinds of animals lived during the first half of the epoch and where their remains have been discovered and where described.

Recently Dr. J. W. Gidley published[3] a paper with the heading *Ancient man in Florida: further investigations*. Dr. Gidley has had fine opportunities for the study of the geology and paleontology of the Pleistocene beds along the coasts of Florida and naturally the present writer has been interested in learning of his discoveries and conclusions. A considerable part of the paper cited deals with the geology. He finds the structure of the beds to be essentially as described by Sellards, but holds different views about their origin. Stratum No. 2 is now named

[3] Bull. Geol. Soc. Am. 40: 491–501. 1929.

the Melbourne bone bed. Gidley's view is that it was formed by drifting sea-sands which slowly covered up and preserved the bones and teeth of the numerous vertebrates. It is very questionable that such abundant remains of vertebrates would endure the effects of exposure to the weather while lying on the surface of dry sand or buried in it. The presence of water and carbonate of lime appears to be necessary for fossilization of bones. Gidley finds that the numerous fossils found in bed No. 3 were in reality lying on the surface of No. 2. The supposition is that this surface was for a long time exposed to the open air and we are asked to believe that the bones of animals accumulated on it during a long period. It is impossible to believe that the bones of animals, especially of small ones, would endure for a long time the disintegrating influence of the weather, the attacks of insects, and the trampling of living animals. Dr. C. W. Cooke's view that the sand was carried into shallow grassy ponds seems more reasonable.

Dr. Gidley holds that the muck bed, No. 3, was laid down in a swamp which excluded land animals, and that for this reason there are in it no fossils. However, even if we should admit that the deposit was formed, at least in part, after the close of the Wisconsin stage, there were still in existence elephants, mastodons, bears, giant beavers, otter, peccaries, alligators, and tortoises, all of which delighted in such swamps. It seems therefore odd that none of them left their bones in that deposit, resting as it does on a good solid bottom. There must be some other reason for the lack of fossils.

Of the greatest interest is Gidley's conclusion regarding the age of the Melbourne bed and its fossils. He insists that when the fossils have been critically examined they prove to be of different species from those found elsewhere, especially the horses, the camels, and proboscideans. He does not tell us who has made these critical studies and certainly he has not made them himself, having published little more than preliminary lists, mostly devoid of specific determinations. As for the horses only three species are known from the state and all of them have been found outside of it and two of them far away. The proboscideans usually found there are recognized as having inhabited the greater part of the continent. The camels are few and closely related to outside species. It goes without needless repetition that Florida possessed and now possesses a few species of mammals not known from other regions, as these other regions each had their peculiar species.

Dr. Gidley appears to attach high importance to *Elephas columbi*, said to be a late Pleistocene species. Such it is, but it is also a species

of the middle and of the early Pleistocene and a common fossil almost everywhere.

Whatever the Pleistocene species found in Florida may be, they were derived in part from the stock native to North America, in part from invaders from South America, and in part from immigrants from Asia; and they had changed exceedingly little from their ancestors. If modified at all in Florida they had become more adapted to a tropical climate and were more susceptible to adverse changes in their environment. It would be beneficial for those who believe that a glacial stage was not much of a storm to study the glacial map published by Dr. Schuchert in Pirsson and Schuchert's *Text-Book of Geology*, on page 945. This map shows that at some time or times, during the Pleistocene, glaciers existed throughout the length of the Andean range, even on the equator; likewise in Africa on the equator; also in the Himalaya Mountains. And these glaciers extended far beyond the limits of their modern representatives. That map clearly indicates that during the Pleistocene there were times when the temperature of the whole world was lowered. This view is expressed by both Chamberlin and Schuchert in their geologic text-books. When the great glaciers covered large parts of North America the mammals of the northern regions could move south and find an endurable climate. Those living in Florida had no such resource and had to suffer the consequences.

Dr. Gidley's paper furnishes us a comprehensive scheme of the times and methods of mammalian distribution throughout North America. It starts with a colony of animals dwelling in Mexico during the first glacial stage. On the decline of this stage migrants made their way north and took possession of the region west of the Mississippi River. On the advent of the second glacial stage the animals retired southward. When this cold stage gave way there was another northward migration; but on reaching their former pastures they found that these had been made arid by the action of the ice. The animals were therefore compelled to move across the Mississippi into Pennsylvania, Maryland, and the District of Columbia, to obtain food and water; later they migrated to Florida.

On May 10, 1927, Dr. Gidley gave a newspaper writer an interview on the results,—geological, paleontological, and anthropological—of his investigations in Florida. This was nearly three months after his paper had been delivered to the Bulletin of the Geological Society of America. During this time he had matured his ideas and was enabled to make definite statements regarding the dates and courses of

the wandering herds. During the first glacial stage, the Nebraskan, mastodons, elephants, camels and other species inhabited Mexico. During the first interglacial stage, the Aftonian, the herds moved north. As a matter of fact, there are found in Iowa, in deposits of this stage, abundant fossils of these mammals. During the second glacial time, the Kansan, they returned again to the south. On the retirement of the Kansan ice, in the second, or Yarmouth, interglacial stage, a migration was made northward, but the region had become arid and the journey was made across the Mississippi. Then came on the last glacial stage, we are told, and the animals were driven into Florida where, after some thousands of years they became extinct. This hypothesis merits some attention.

It is extremely doubtful that evidence can be presented that any species of elephant existed in Mexico during the first glacial stage. While it is certain that the region west of the Mississippi was supplied with mastodons, elephants, camels, and horses, we are not told whether our eastern states possessed any vertebrates during the first and second glacial stages and the first interglacial. It would also be interesting to listen to the arguments presented to show that the prevalence of ice tends to render a region arid instead of swampy.

Among the important extinct mammals found in the Melbourne beds in Florida are *Elephas imperator*, two or more species of glyptodons, a gigantic armadillo, and a megatherium. Now, according to Dr. Gidley's history, these animals must have been a part of the immigrants into our eastern region. Several large collections of fossil vertebrates, which may well have lived during the Yarmouth stage or were at least descendents of those which lived then, have been made in Maryland, Virginia and Pennsylvania, but nobody has reported the discovery of a scrap of a skeleton of any one of the important species mentioned above as found in the Melbourne beds.

It is true that during the Yarmouth stage few vertebrates appear to have existed in Iowa, but is this lack of fossils due to aridity of climate? It is very probably due to the fact that Yarmouth deposits are buried under later drift beds.

Now a few words about the alleged arid climate of Iowa during the Yarmouth. In Monograph 32 of the U. S. Geological Survey, Dr. Frank Leverett writes thus about the Yarmouth deposits in the southeastern corner of the state: "The Illinois till in Lee County, as also in counties to the north, is separated from the underlying Kansan till sheet by a weathered zone accompanied by beds of black muck and

peaty material" (p. 7.) On his page 42, he presented a geological section of the Yarmouth, part of which is as follows:

Peat bed with twigs and bones.....15 feet
Clay containing wood.....12 feet

As further evidence of abundant water during the Yarmouth, Leverett found that the top of the Kansan drift has been eached of its lime to a depth of from four to six feet.

Recently Dr. George F. Kay[4] wrote that the Yarmouth is widely present in northeastern Iowa, overlain by Iowan drift, and in southeastern Iowa, overlain by Illinoian drift. In many exposures there is found on the upper surface of the Kansan drift an old soil or "forest bed." From these reports the conclusion is easily drawn that during that long geological stage there was an abundance of rain and of vegetation and that there were other mammals there besides rabbits and skunks.

Dr. Gidley's hypothesis greatly simplifies the history of the Pleistocene, inasmuch as it eliminates two glacial stages, the Iowan and the Wisconsin, and two interglacial, the Peorian and the Sangamon. This solution, if confirmed, will indeed "tend to push the Pleistocene further toward the present." In case Dr. Gidley can induce American geologists to adopt the European method of beginning the Pleistocene with the third glacial stage, the epoch will be brought to a satisfactory state of insignificance.

Dr. Gidley and others who insist that the fauna present in the Pleistocene beds in Florida lived until, or into, or near, the Recent epoch recognize the necessity of proposing a cause for the sudden and enormous change in the genera and species. They are, therefore, now asserting that it was coincident with the arrival of the Indians in America. When Columbus reached America these Indians had warred on the game animals for at least a few thousand years without diminishing their numbers. The forests and prairies, the mountains and the rivers, swarmed with mammals, birds and fishes. It is surprising then that the Pleistocene inhabitants, armed with feeble weapons, should be thought capable of destroying the herds of elephants, mastodons, great bisons, the horses, and the numerous tigers, wolves, and sloths that inhabited North America.

Dr. Gidley has twice published the statement that the great proboscideans, elephants and mastodons, existed in Florida long after they

[4] Bull. Geol. Soc. Am. 40: 86. 1929.

had become extinct in the northern states. No evidences to sustain this view have been produced and none at present can be offered, except that Florida possesses a climate more favorable for animal life. Is there any truth in this notion?

The writer has collected lists of the mammals that existed in early historic days in three states, Florida, Illinois and the mountain region of Colorado. Florida possesses 58,685 square miles of territory, Illinois 56,000, the mountainous region of Colorado approximately 65,000. From reliable authorities it is learned that Florida harbors 65 species and subspecies, Illinois 60 species and subspecies, and the mountain region of Colorado 110 forms. If we proportion the species in each region to areas of the same size, that of Illinois, 56,000 square miles, we shall have for Illinois 60 species and subspecies, for Florida 63, and for Colorado 94.

We see therefore that in number of mammalian forms Florida stands only a little ahead of Illinois and far behind the mountain region of Colorado. Nor is it probable that any one will contend that the mammals of Florida are superior in size, structure, or intelligence, to those of the more northern regions.

The fossil mammals of the Villafranchian group in Italy are of about the same age as those of our Aftonian stage. They include the genera *Felis, Machairodus, Hyaena, Bos, Cervus, Tapirus, Equus,* and two species of primitive elephants. Italy must have always had a milder climate than the lands to the north. Why should not those who argue for a late age of the mammals of the Melbourne beds insist on the same age for the deposits of Val d'Arno? The motive furnished by human remains is apparently wanting.

PALEONTOLOGY.—*New species of fossil decapod crustaceans from California.*[1] MARY J. RATHBUN, U. S. National Museum

Through Leo G. Hertlein, Department of Paleontology, California Academy of Sciences, fossil specimens of a crab and a shrimp new to science were sent to the U. S. National Museum for identification and description.

Nephrops shastensis, sp. nov.

TYPE: From 2 miles north of Bella Vista, Shasta County, California; Chico, upper Cretaceous; G. D. Hanna and F. M. Anderson collectors, April, 1928. Body and one cheliped exposed (see fig. 1, page 471). Specimen in California Academy of Sciences. The fossil occurred in a bed of earthy shale

[1] Received November 7, 1929.

about 300 feet thick, dipping south 10°. This overlies a zone of sandstone 520 feet thick with same dip and strike and this in turn lies on Triassic slates striking N.W.—S.W. with a dip S.E. of 75°–85°.

MEASUREMENTS: Length of carapace to end of rostrum 33.5, length of rostrum from tip to posterior curve of orbit 9, greatest height of carapace 15, approximate length of cheliped 72, length of chela 46, greatest width of chela, across fingers 9.6, length of dactylus along inner margin 24, width of pleuron of second abdominal segment 8 mm.

DESCRIPTION: Carapace: Upper margin slightly arcuate in front of cervical suture, straight behind the suture. Surface marked with numerous very short, fine raised lines having the appearance of granules. Cervical suture slightly oblique, nearly straight, very broad above the middle of the carapace, below the middle gradually diminishing, and ending at about the lower fourth of the carapace. The hepatic groove so far as it is visible occupies the middle third of the vertical distance of the carapace; it is subparallel to the cervical groove and is deeper; at its lower end it forks into two short equal branches; the anterior branch is prolonged in a shallow furrow which curves into a longitudinal direction toward the anterior angle of the carapace. Between the cervical and hepatic grooves there is a low longitudinal elevation, and one similar but higher in the same line in front of the hepatic groove; this last named swelling is bounded anteriorly by a shallow groove. A tubercle, which may have been a spine, lies a little behind and above the deepest part of the orbit. On the upper margin of the rostrum there are indications of three small spines, one at the base, one near the tip, and the other half way between.

Portions of the first four abdominal somites remain. The surface where present is smooth and punctate. The pleuron of the second somite is longer, in the direction of the axis of the body, than it is deep; it is suboval, obtusely angled at the lowest point and its surface is more or less concave. The tip of the third pleuron projects below the second and is rectangular, the angle pointing downward.

The surface of merus, carpus and palm of cheliped is rough with short transverse rugae; merus narrow, increasing in width distally; the carpus appears short and has a large spine on its upper margin. Chela very long; palm increasing in width from the proximal to the distal end; exposed surface gently rounded, without carina; fingers about as long as palm, the fixed finger narrower than the dactyl and overreaching it a little; both fingers are irregularly dentate, the dactyl has a lobe at its distal two-fifths whereas the fixed finger has a smaller lobe on either side of it. The articulation of the dactylus is concealed.

Persephona invalida, sp. nov.

TYPE: From San Diego, California; Pliocene. Carapace only. Specimen in California Academy of Sciences. Orig. No. 1413. A fragment of a smaller specimen bears the same number.

MEASUREMENTS: Extreme length of carapace 39.4, approximate width 36, height 17.5 mm.

DESCRIPTION: Fronto-orbital region horizontal and slightly advanced beyond the spherical portion of the carapace. Cardiac and intestinal regions delimited laterally, the intestinal region deeply so. The entire surface of the carapace is thickly covered with coarse conical granules varying in size,

Fig. 1. *Nephrops shastensis*, holotype, side view, × 2.

the spaces between the larger ones filled with smaller ones; on the anterior quarter of the carapace the granules become progressively smaller and more crowded. The frontal teeth are broad, blunt and hood-shaped and more advanced than the outer tooth of the orbit; fronto-orbital margin granulate; two closed fissures in the upper orbit, separated by a broad, shallow lobe. The outer of these fissures is continued backward in a broad, shallow depression which partially defines the hepatic region. Still further back on the right side may be seen the marginal hepatic angle. Posterior margin of carapace incomplete and obscure; no intestinal median spine; there may be a spine at the outer end of the posterior margin but it cannot be determined with certainty.

In shape and general appearance this carapace most resembles the Recent *P. punctata* (Linnaeus)[2] from the southeastern coast of North America.

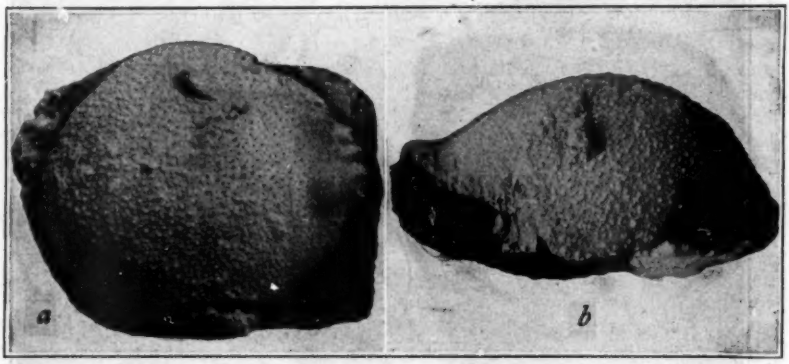

Fig. 2. *Persephona invalida*, holotype, carapace, × about 1¼.
a. Dorsal view. *b*. Left profile.

BOTANY.—*On the names of certain species of* Deguelia (Derris).[1]

S. F. BLAKE, Bureau of Plant Industry.

In recent years a number of species of the leguminous genus usually known as *Derris* have attracted attention as insecticides. The nomenclature of the genus as well as of some of its species is considerably involved. The present paper is the result of an attempt to determine what names certain species of the genus, discussed in a projected publication of the Bureau of Chemistry of the U. S. Department of Agriculture, should bear under the American Code of Botanical Nomenclature.

[2] *Cancer punctatus* Linnaeus. Syst. Nat., ed. 10. 1: 630. 1758. (In part.)

[1] Received November 19, 1929.

Loureiro's name *Derris*, which has been generally used for the genus in both botanical and chemical literature, is antedated by several other generic names. Four of these can be disposed of readily. *Pterocarpus* L. 1747 (not L. 1763) was taken up by Kuntze,[2] but is of course removed from consideration under modern codes of nomenclature because of its date. *Salken* Adans.[3] and *Solori* Adans.,[4] the pertinence of which to the genus under discussion has been established by Prain,[5] are not available under the American Rules because not associable with a binomially named species. Although available under the International Rules, they are removed from consideration by the retention of *Derris* Lour. as a nomen conservandum. *Cylizoma* Neck.,[6] of even date with *Derris*, is a mere renaming of *Deguelia* Aubl.

Deguelia Aubl.,[7] the earliest available name for the genus under the American Code and the one which must be used by those who follow it, was based on a single species, *Deguelia scandens*. Aublet's material was a mixture, the fruit figured and described[8] being that of *Muellera moniliformis* L. f. His description, excluding the character of the fruit, is based on the plant afterwards named *Derris guianensis* by Bentham, and his generic name has long been regarded as equivalent to *Derris*.

Derris Lour.,[9] as originally published, included two species, *D. pinnata* and *D. trifoliata*. Both species have been variously identified by different authors. Merrill,[10] apparently the last author to discuss their status critically, is satisfied that *D. pinnata* is identical with *Dalbergia tamarindifolia* Roxb., and *D. trifoliata* with *Derris uliginosa* (Roxb.) Benth., and his statement of the case seems to dispose of the doubts which had been raised by Prain[11] in 1897 and 1904.

Study of Loureiro's descriptions indicates that the apparently universal action of botanists in restricting his name to the "Derris" component is not justified. His generic description runs as follows:

[2] Rev. Gen. Pl. **1**: 202. 1891.
[3] Fam. Pl. **2**: 322, 600. 1763.
[4] Fam. Pl. **2**: 327, 606. 1763.
[5] Ann. Bot. Gard. Calcutta **10**: 10. 1904.
[6] Elem. Bot. **3**: 33. 1790.
[7] Hist. Pl. Guian. **2**: 750. *pl. 300*. 1775.
[8] See Bentham, Journ. Linn. Soc. Bot. **4**: Suppl. 106. 1860.
[9] "Fl. Cochinch. 432. 1790;" ed. 2. 525. 1793.
[10] Philipp. Journ. Sci. ser. C. Bot. **5**: 96, 105–6. 1910.
[11] Journ. Asiat. Soc. Bengal **66**: 458. 1897 (*Derris trifoliata*); Ann. Bot. Gard. Calcutta **10**: 48, 108. 1904 (*Derris pinnata*).

†GENUS X. DERRIS.

Descriptio naturalis.

Cal. Perianthium tubulosum, coloratum, margine 5-crenato, erecto.

Cor. Petala 4, papilonacea, longitudine subaequalia: vexillo ovato: alis oblongis: carina lunata: omnibus basi falcatis, unguibus filiformibus insistentibus.

Stam. Filamenta 10, omnia connata in vaginam, aequalia, brevia. Antherae didymae lobis rotundis.

Pist. Germen oblongum, compressum. Stylus aequalis staminibus. Stigma simplex.

Peric. Legumen oblongum, obtusum, compressissimum, membranaceum, laeve, monospermum.

Sem. oblongum, planum.

Nom. (Δέρρις), membrana) a legumine membranaceo.

Char. gener. *Cal.* 5-crenatus, coloratus. *Petala* unguibus filiformibus. *Legum.* oblongum, membranaceum.

Every feature in this description which is distinctive of either of the two included modern genera (*Derris* of authors, as represented by *D. uliginosa*, and *Dalbergia*, as represented by *D. tamarindifolia*) applies to the *Dalbergia* component alone. The calyx in the *Dalbergia* is distinctly 5-toothed, that of *Derris uliginosa* much less strongly so (by Prain described as subtruncate; Loureiro described that of his *Derris trifoliata*, in opposition to the generic character, as "leviter 4-dentato"). In both species the keel petals are united toward the tip (Loureiro gave the petals as "4"), but in the *Dalbergia* their claws are relatively much longer and more slender, and in much better agreement with Loureiro's "filiformibus." In both the stamens are monadelphous; but the description of the anthers as "didymae lobis rotundis" applies exactly to the *Dalbergia*, not at all well to the *Derris*. The character of the fruit, from which Loureiro derived his generic name, fits the *Dalbergia*, not the *Derris*. Loureiro described the pod as 1-seeded both in the generic description and in the description of *D. pinnata;* the pod of *D. trifoliata*, of which he had not seen mature fruit, he described as 2-3-seeded, again attributing to this species a character not in agreement with his generic description. In *Dalbergia tamarindifolia* the seed is narrowly oblong, more than four times as long as wide; in *Derris uliginosa* it is reniform-orbicular and practically as broad as long. In view of all these points of agreement of Loureiro's generic description with the *Dalbergia* component, and its corresponding disagreement with the "*Derris*" component, it would seem clear that the name *Derris* Lour. should be typified by his first species, *D. pinnata*, which is *Dalbergia pinnata* (Lour.) Prain (*D. tamarindifolia* Roxb.), and should consequently be remanded to the synonymy of *Dalbergia* L. f. (1781), the oldest name for which is *Amerimnon* P. Br. (1756). The question

of the typification of *Derris* is, however, merely an academic one, since the name has been conserved under the Vienna Rules in the sense of *Deguelia* Aubl., and since the latter name must be adopted under the American Code.

The following species, discussed in a projected publication of the Bureau of Chemistry and Soils dealing with *Derris* as an insecticide, require transfer to *Deguelia:*

Deguelia benthamii (Thwaites) Blake.
Brachypterum benthamii Thwaites, Enum. Pl. Zeyl. 93. 1859.
Derris paniculata Benth. Journ. Linn. Soc. Bot. **4**: Suppl. 105. 1860.
Derris benthamii Thwaites, Enum. Pl. Zeyl. 413. 1864.
Deguelia paniculata Taub. Bot. Centralbl. **47**: 388. 1891.

Deguelia heptaphylla (L.) Blake.
Sophora heptaphylla L. Sp. Pl. 373. 1753.
Derris sinuata Benth.; Thwaites, Enum. Pl. Zeyl. 93. 1859.
Derris heptaphylla Merr. Interpr. Rumph. Herb. Amboin. 273. 1917.

Deguelia koolgibberah (F. M. Bailey) Blake.
Derris koolgibberah F. M. Bailey, Rep. Exp. Bellenden-Ker 38. 1889.
The uncouth specific name is, according to its author, "the aboriginal name for the Mulgrave River," where the plant was collected.

Deguelia malaccensis (Benth.) Blake.
Derris cuneifolia β. malaccensis Benth. Journ. Linn. Soc. Bot. **4**: Suppl. 112. 1860.
Derris malaccensis Prain in King, Journ. Asiat. Soc. Bengal **66**: 107. 1897.

Deguelia oligosperma (K. Schum. & Lauterb.) Blake.
Derris oligosperma K. Schum. & Lauterb. Fl. Deutsch. Schutzengeb. Südsee 361. 1901.

Deguelia philippinensis (Merr.) Blake.
Derris multiflora β.? longifolia Benth. Journ. Linn. Soc. Bot. **4**: Suppl. 108. 1860. Not *Derris longifolia* Benth. 1860.
Derris philippinensis Merr. Philipp. Journ. Sci. ser. C. Bot. **5**: 104. 1910.

Deguelia polyantha (Perkins) Blake.
Derris polyantha Perkins, Fragm. Fl. Philipp. 83. 1904.

NOTICE OF PROPOSED REVISION OF THE BY-LAWS OF THE WASHINGTON ACADEMY OF SCIENCES

At a meeting of the Board of Managers of the Washington Academy of Sciences held November 21, 1929, the report of the special committee on revision of the By-Laws was accepted. It was ordered that the proposed revised By-Laws be printed in the Journal of the Academy and be presented at the Annual Meeting of the Academy with the recommendation that they be adopted. The text of the proposed revision is attached.

L. B. TUCKERMAN,
Corresponding Secretary.

PROPOSED BY-LAWS

ARTICLE I—MEMBERS

Section 1.—The Washington Academy of Sciences shall be composed of three classes of members, as follows: Active members, honorary members and patrons.

Active members shall be classified as non-resident and resident members, those living within twenty-five miles of Washington being resident members.

The number of active members shall not exceed six hundred, of whom not more than four hundred shall be resident members, provided that non-resident may become resident members regardless of this limitation.

Members and honorary members shall be persons who by reason of original research or scientific attainment are deemed eligible to these classes. Persons who have given to the Academy not less than one thousand dollars or its equivalent in property, shall be eligible to election as patrons.

Section 2.—The annual dues of active members shall be five dollars; honorary members and patrons shall pay no dues. Members whose dues are in arrears for more than one year shall not be entitled to receive the publications of the Academy, and those in arrears for more than two years shall be dropped from the roll of the Academy, unless the Board of Managers (See Article II) shall otherwise direct.

Active members in good standing may be relieved from further payment of all dues by a single payment based upon the present worth of a life annuity of five dollars per year as determined by the Board of Managers.

Section 3.—Nominations for membership in any class shall be presented in writing at a meeting of the Board of Managers, endorsed by at least three members of the Academy or by an affiliated society (See Article VI). They shall be accompanied by a statement of the qualifications of the nominee and a list of his more important publications.

Section 4.—Election to membership shall be by vote of the Board of Managers. Final action on nominations shall be deferred at least one week after presentation and three fourths of the vote cast shall be necessary to elect. An election to active membership shall be void if the person elected does not within three months thereafter pay his dues or satisfactorily explain to the Board of Managers his failure to do so.

ARTICLE II—OFFICERS

Section 1.—The officers of the Academy shall be a President, one Vice-President from each of the affiliated societies, a Corresponding Secretary, a Recording Secretary and a Treasurer, chosen from resident members, and two Vice-Presidents chosen from non-resident members whose term of office shall be one year; and six managers chosen from resident members, grouped in three classes of two each, whose term of office shall be three years. These officers and the Senior Editor (See Section 4) shall constitute the Board of Managers.

The newly elected officers shall take office at the close of the annual meeting (See Article III).

No member shall be eligible to hold office until one year after his election to membership.

Section 2.—The President and the Treasurer, when directed by the Board, shall jointly assign securities belonging to the Academy and indorse financial and legal papers necessary for the uses of the Academy, except those relating

to current expenditures authorized by the Board of Managers. In case of disability or absence of the President or Treasurer the Board of Managers may designate a Vice President as Acting President or an Officer of the Academy as Acting Treasurer, who shall perform all the duties of these offices, during such disability or absence.

Section 3.—The Board of Managers shall transact all business of the Academy not otherwise provided for. A majority vote with at least five affirmative votes shall be necessary for action. The Board shall have power to fill vacancies in its own membership until the next annual election. Vacancies in the office of Resident Vice-President shall be filled on nomination by the appropriate affiliated societies.

Section 4.—The Board of Editors shall consist of three members. One new member to serve three years shall be appointed each year by the President, who shall fill any vacancy which may occur. The President shall designate one of the Editors as Senior Editor.

Article III—Meetings

Section 1.—The annual meeting shall be held each year in January; it shall be held on the second Tuesday of the month unless otherwise directed by the Board of Managers. At this meeting the reports of the Secretaries, Treasurer, Auditing Committee, (See Article IV) and Editors of the Journal shall be presented and the resident Vice-Presidents for the ensuing year shall be elected.

Section 2.—Other meetings shall be held at such time and place as the Board of Managers may determine.

Article IV—Committees

Section 1.—The Board of Managers may provide for such standing and special committees as it deems necessary.

Section 2.—The President shall appoint in advance of the annual meeting an Auditing Committee consisting of three persons, none of whom is an officer, to audit the accounts of the Treasurer.

Section 3.—The Vice-Presidents shall constitute a Nominating Committee (See Article V). The Vice-President from the Philosophical Society shall be Chairman of the Committee; or, in his absence, the Vice-President from another society in the order of seniority as given in Article VI, Section 2.

Section 4.—On or before the last Thursday of each year the President shall appoint a committee of three tellers whose duty it shall be to canvass the ballots for officers.

Article V—Election of Officers

Section 1.—Before the first day of November of each year the Nominating Committee, on being notified by the Corresponding Secretary, shall meet and organize; and shall then nominate, by preferential ballot, in the manner prescribed by the Board of Managers, one person for the office of President; two persons for the non-resident Vice-Presidents; one each for those of Recording Secretary, Corresponding Secretary, and Treasurer; and four for two Managers. It shall, at the same time, and in like manner, make nominations for any vacancy.

Not later than November 15, the Corresponding Secretary shall forward to each member a printed notice of these nominations, with a list of incumbent officers.

Independent nominations may be made in writing by any ten members. In order to receive consideration, such nominations must be forwarded to the Corresponding Secretary before the first day of December.

Not later than December 15, the Corresponding Secretary shall prepare and mail ballots to members. Independent nominations shall be included on the ballots, and the names of the nominees for each office shall be arranged in alphabetical order. Where more than two candidates are nominated for the same office the voting shall be by preferential ballot, in the manner prescribed by the Board of Managers. These ballots shall also contain a notice to the effect that votes not received by the Corresponding Secretary before the first Tuesday in January and votes of members whose dues are in arrears for one year will not be counted.

Before the Annual Meeting the tellers shall canvass the votes and report the results of the ballot to the Corresponding Secretary, who shall announce the vote at the annual meeting of the Academy.

Article VI—Cooperation

Section 1.—The Academy may act as a federal head of the affiliated scientific societies of Washington for the purpose of conducting joint meetings, publishing a joint directory and joint notices of meetings, and taking action in any matter of common interest to the affiliated societies: Provided, it shall not have power to incur for or in the name of one or more of these societies any expense or liability not previously authorized by said society or societies.

Section 2.—The term "affiliated societies" shall be held to cover the Philosophical Society of Washington; Anthropological Society of Washington; Biological Society of Washington; Washington Section, American Chemical Society; Entomological Society of Washington; National Geographic Society; Geological Society of Washington; Medical Society of the District of Columbia; Columbia Historical Society; Botanical Society of Washington; Archaeological Society of Washington; Washington Section, Society of American Foresters; Washington Society of Engineers; Washington Section, American Institute of Electrical Engineers; Washington Section, American Society of Mechanical Engineers; Helminthological Society of Washington; Washington Branch, Society of American Bacteriologists; Washington Post, Society of American Military Engineers, and such others as may be hereafter recommended by the Board and elected by two-thirds of the members of the Academy voting, the vote being taken by correspondence. A society may be released from affiliation on recommendation of the Board of Managers, and the concurrence of two-thirds of the members of the Academy voting.

Section 3.—One Vice-President may be nominated by each affiliated society from the resident members of the Academy, subject to election by a majority vote at the annual meeting of the Academy.

Article VII—Recognition of Merit in Scientific Work

Section 1.—The Academy may award medals and prizes, or otherwise express its recognition and commendation of scientific work of high merit and distinction.

Section 2.—Awards shall be made only on approval by the Board of Managers of a recommendation of a committee on awards.

ARTICLE VIII—AMENDMENTS

These By-Laws may be amended in the following manner:

Written notice of the proposed change, signed by at least three resident members, may be presented at any meeting of the Board of Managers, which shall consider the proposed change and submit it (after two weeks printed notice) to the Academy for action, at or before the next annual meeting, with such amendment or recommendation as it deems wise. A two-thirds vote of the members voting shall be necessary to adoption. The action of the Academy on proposed amendments shall be reported at the next meeting of the Board of Managers, and published in the Journal.

SCIENTIFIC NOTES AND NEWS

Mr. E. P. HENDERSON of the U. S. Geological Survey has been appointed Assistant Curator of Applied Geology in the National Museum.

Mr. HENRY B. COLLINS, Assistant Curator of Ethnology, U. S. National Museum, returned recently from Alaska, where he has been engaged in field-work since April. Through the courtesy of the Coast Guard Service, Mr. Collins was enabled to visit on the steamship *Northland* most of the Alaskan coast and to collect specimens at the many stations visited. More than a month was spent in stratigraphical work on St. Lawrence Island in Bering Sea.

Dr. PAUL BARTSCH, of the U. S. National Museum, has returned from a trip to the West Indies, made under the auspices of the Walter Rathbone Bacon Travelling Scholarship. He visited all the islands between Porto Rico and Trinidad, excepting Antigua and Barbuda, which had been thoroughly explored by Mr. J. B. HENDERSON, and Barbados. After leaving Trinidad, his expedition sailed along the coast of South America, visiting the Leeward Islands, Margarita, Orchilla, El Roque, Bonaire, Curacao, and Aruba.

Dr. FRANK H. H. ROBERTS, JR., of the Bureau of American Ethnology has returned to Washington after five months in eastern Arizona, where he excavated 17 pit houses and a Pueblo ruin containing 45 rooms. The pit houses were found to represent the closing phase of the earliest sedentary culture in the Southwest. One of the most significant discoveries of the season's work was that of the remains of a complete pit house underlying one end of the Pueblo ruin, definitely showing that the pit house was an older form.

Prof. C. H. OSTENFELD, Director of the Botanical Garden and Museum, Copenhagen, Denmark, recently spent several days in Washington, giving particular attention to Alaskan plants in the National Herbarium, especially those of Arctic Alaska. His studies were undertaken in connection with the preparation of a flora of northern Canada, a project upon which he is jointly engaged with Dr. M. O. MALTE, Chief Botanist of the Canadian National Herbarium, Ottawa.

Dr. JOSEPH GRINNELL, of the University of California Museum of Vertebrate Zoology, and Mr. W. E. CLYDE TODD, of the Carnegie Museum, Pittsburgh, have recently been carrying on studies of the collections in the Division of Birds, National Museum.

Dr. R. KIMURA, Chief Geologist of the Geological Survey of the South Manchuria Railway Company, spent several days in the National Museum looking over the exhibits and other collections of the Department of Geology. He expressed great appreciation of the completeness of the collections and was much interested in methods of geological mapping. Dr. T. ITO, assistant professor in the Tokyo Imperial University, also visited the Museum on November 11, his particular interest being in the mineral collections.

Dr. D. P. CURRY, Assistant Chief of the Health Department at Balboa, Canal Zone, has been spending several days at the National Museum examining material in mosquitoes. For some years Dr. Curry has made a special study of the mosquitoes of his region. He has devised a new method for mounting genitalia, and brought with him some very fine material for comparison.

Secretary C. G. ABBOT of the Smithsonian Institution attended the fall meeting of the National Academy of Sciences held at Princeton, N. J., on November 18 and 19, and presented a paper on "The Radiation of the Planet Earth to Space." Other members of the staff of the Institution attending the meeting were Dr. ALEŠ HRDLIČKA, who presented a paper on his latest explorations on the Yukon, and Dr. E. O. ULRICH.

On November 14 Assistant Secretary A. WETMORE spoke at the University of Michigan, Ann Arbor, Michigan, on *Life of the Hawaiian Bird Reservation*, and that same evening addressed a group of faculty members and graduate students at the University Museum on *The Research Work of the Smithsonian Institution*.

The survey yacht CARNEGIE and her scientific equipment were completely destroyed in the harbor at Apia, Western Samoa, on the afternoon of November 29, 1929, following the explosion of gasoline while it was being stored on the vessel. Captain JAMES PERCY AULT, in command, and one cabin boy were killed, the engineer and mechanic were seriously injured, and three of the sailors hurt. The scientific members of the staff with the exception of W. C. PARKINSON, second in command, are expected with Captain Ault's body at San Francisco about December 19. Mr. Parkinson is remaining at Apia temporarily from which place he will proceed later to take charge of the Watheroo Magnetic Observatory in Western Australia.

The CARNEGIE was the property of the Department of Terrestrial Magnetism of the Carnegie Institution of Washington and had completed about 45,000 nautical miles of her seventh cruise at the time of the accident. Since launching in 1909 she had traversed in all oceans from 80° north to 61° south, a total of nearly 300,000 nautical miles. The data gathered form valuable contributions to the science of geophysics including terrestrial magnetism and electricity, oceanography, and meteorology.

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